

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



### **SUPPORT FOR THE AMENDMENTS**

The amendments to the specifications are editorial in nature and clearly do not introduce any new matter. Therefore they will not be discussed in further detail.

The amendments to claims are also editorial in nature and are relatively clear that do not introduce new matter. It is noted that claim 15 has been divided into 2 claims so that claim 15 does not contain a range within a range. Newly added claim 16 encompasses the preferred container of a bottle, deleted from claim 15.

In view of the foregoing remarks, it is respectfully submitted that the amendments to specifications and claims do not introduce any new matter for the reasons stated above.

### **RESPONSE TO THE CLAIM OBJECTIONS**

Claims 1, 2, and 12 were objected to since the term "polymerization" and "fiber" were spelled with the English spelling. These terms have been corrected to their proper U.S. spellings. Therefore, the foregoing amendments overcome the Examiner's objections to these claims.

### **RESPONSE TO REJECTIONS UNDER 35 USC § 112**

Claims 1-15 were rejected under 35 USC § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants respectfully traverse this rejection.

The Examiner rejects claims 1 and 12 on the basis that the phrase "a reasonably open surface" is indefinite. Applicants have amended the claims to indicate that the reasonably open surface is an open film surface for printing. Applicants point out that the phrase "open surface" means that there is a sufficient area of the substrate which has been treated with the printable surface layer so that the substrate can be printed with an ultraviolet light curable ink, using a suitable printing method. It is respectfully submitted that one skilled in the art will understand the meaning of the phrase "open

RECEIVED  
MAY -5 2000  
TOLSON MAIL ROOM

film surface" as it appears in the present claims. One skilled in the art would know that an open film surface is not a cellular structure as the Examiner has queried.

Claim 15 was rejected on the basis that it contains a broad recitation and a narrow recitation for the same feature. Applicants point out that claim 15 has been amended to delete the recitation of a bottle and Applicants have added claims 16 to claim that the container of claim 15 is a bottle.

It is respectfully submitted that the foregoing amendments to claim 15 overcomes the rejection under 35 USC § 112, second paragraph.

### **RESPONSE TO THE REJECTION UNDER 35 USC § 102**

Claims 1-4 and 6-15 rejected under 35 USC § 102 (b) as being anticipated by Kaburaki et al., U.S. Patent, 5,047,286. Applicants respectfully traverse this rejection.

Before addressing this objection, Applicants believe that it will be beneficial to describe the claimed invention.

Applicants' claims are directed a printable film which comprises a substrate and at least one surface layer. The surface layer which covers at least one face of the substrate consists essentially of 10 to 98% by weight of water dispersible polymer which is capable of providing a smooth film and an open film surface for printing. The composition further comprises 2 to 90% by the weight of an ethylenically unsaturated compound selected from the polyfunctional acrylates resulting from the esterification of a polyol with (meth) acrylic acid or polyallyl derivatives. Further, the claims require that the surface layer does not contain an addition polymerization photoinitiator. There are additional claims directed to a process for the manufacture of a printable film, labels made from the printable film and containers having a label made from the printable film.

Turning to the Kaburaki et al. patent, Kaburaki is directed a printing sheet comprising a support and a surface layer provided on one side of the support. The surface layer contains a polymer selected from a group consisting of n-butyl (meth)acrylate based polymers, phenyl (meth)acrylate based homopolymers and

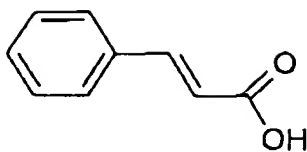
copolymers, benzyl (meth)acrylate based homopolymers and copolymers, styrene based homopolymers and copolymers. Further, the surface can be one of the foregoing polymers when mixed with cinnamic acid, or cinnamic acid derivatives. (See column 2 lines 15-41 of Kaburaki et al.)

In the statement of the rejection, the Examiner states Kaburaki et al. discloses a surface layer consisting essentially 1-70% by weight of a water-dispersible polymer and 30-100% of an ethylenically unsaturated compound and cites column 2, line 60-column 3, line 30 for support.

Applicants point out that the monomers discussed in column 2, line 60-column 3, line 30 are the monomers which are used to produce the polymers and copolymers discussed above. It is noted that each of these monomers is not present in addition to the polymer but are monomers which are used to produce the polymer.

Therefore, Kaburaki does not anticipate the Applicants' claims on the basis that the ethylenically unsaturated monomers which the Examiner finds to be in conjunction with the polymer are actually constituents of the polymer, i.e. monomers used to produce the polymer, and are not additional components added to the composition in addition to the polymer. As the Applicants claims clearly require, the surface layer must contain a water dispersible polymer and an ethylenically unsaturated compound selected from polyfunctional acrylates resulting from the esterification of a polyol with (meth)acrylic acid or polyallyl derivatives. This feature is clearly not taught in Kaburaki, et al.

It is acknowledged that Kaburaki does disclose that cinnamic acid or cinnamic acid derivatives can be used in conjunction with the polymers. However, cinnamic acid is not polyfunctional acrylates resulting from the esterification of a polyol with (meth)acrylic acid or polyallyl derivatives. Cinnamic acid has a formula of:



E-3-phenyl-2-propenoic acid.

Given that Kaburaki does not teach a printable film comprising a substrate and a surface layer wherein the surface layer is a mixture a water dispersible polymer and a polyfunctional acrylate resulting from the esterification of a polyol with (meth)acrylic acid or a polyallyl derivative in the proportions cited in the Applicants' claims, not all the Applicants claim limitations are met by Kuburaki et al. Therefore Kuburaki et al. does not anticipate the Applicants' claims.

It is further pointed out that Kuburaki et al. also does not render the Applicants' claim obvious within the meaning of 35 USC § 103. There is no motivation found in Kuburaki alone to replace the cinnamic acid or cinnamic acid derivative with a polyfunctional acrylates resulting from the esterification of a polyol with (meth)acrylic acid or a polyallyl derivative. In addition, it is noted that the amount of cinnamic acid or its derivatives found in the examples of Kaburaki is only 0.5% by weight. Therefore, even if there was motivation to substitute the claimed ethylenically unsaturated compounds for cinnamic acid or its derivatives, which there is not, one skilled in the art would not be motivated to use the amount of the unsaturated compound required by Applicants' claim. Therefore, Kaburaki et al. also fails to render the Applicants' claims obvious within the meaning of 35 USC § 103, for the above reasons.

#### **RESPONSE TO THE REJECTION UNDER 35 USC § 103**

Claim 5 was rejected under 35 USC § 103(a) as being unpatentable over Kaburaki et al., U.S. Patent 5,047,286 in view of Atherton U.S. Patent 5,714,245. Applicants respectfully traverse this rejection.

The Examiner relies on Atherton to cure the only deficiency that the Examiner sees in Kaburaki, i.e., that Kaburaki does not teach the polyurethane polymer as a water dispersible polymer. It is again pointed out that Kaburaki et al. has other deficiencies besides the lack of the teaching of using a polyurethane polymer, as is noted above. In particular, Kaburaki does not teach adding to the polymer component of the surface layer ethylenically unsaturated compound selected polyfunctional acrylates resulting from the esterification of a polyol with (meth)acrylic acid or polyallyl derivatives.

It is pointed out that the passage relied upon by the Examiner to describe the use of polyurethane water dispersible components actually describes the polyurethane as a "water insoluble components". The Examiner's attention is directed to the paragraph bridging columns 2 and 3 which starts at line 66 of column 2 "[e]xamples of water insoluble components include methyl methacrylate, styrene, urethane, butadiene, 2-hydroxyethyl acrylate, ethyl acrylate, N-hydroxyethyl acrylamide, N-hydroxymethyl acrylamide and ethylene terephthalate" (emphasis added). Clearly these components are water insoluble and are not water soluble as the Examiner has contended. It is pointed out that this is the only reference to polyurethanes found in the Atherton patent. One skilled in the art, reading Atherton, would not have been motivated to replace the polymer component of Kaburaki et al. with a water insoluble polyurethane of Atherton. Even if one skilled in the art was so motivated to make such a change, the resulting composition would not result in the Applicants' claimed surface layer. Specifically, Atherton is silent about having ethylenically unsaturated components, as claimed by Applicants. Therefore, Atherton fails to cure the critical deficiency of Kaburaki et al as is noted above.

In order for a combination of references to render a claim obvious, the references in combination, must teach the claimed invention "as a whole" including all the limitations of the Applicants' claims. Given that the combination of Kaburaki and Atherton does not result in the Applicants' claimed invention since neither reference teaches or suggests the addition of an ethylenically unsaturated compound selected

from polyfunctional acrylates resulting from the esterification of a polyol with (meth)acrylic acid or a polyallyl derivatives. Hence, the combination of Kaburaki and Atherton failed to render the Applicants claims obvious within the meaning of 35 USC §103.

With respect to the references listed on the PTO 892 Form, which are not being relied upon by the Examiner to reject the claims, Applicants offer the following statements regarding these references.

U.S. 5,585,416 (Audett), discloses UV and EB curable copolymers of a  $C_{4-7}$  olefin with a para-alkylstyrene having a photoinitiator substituted on the pendant alkyl group. The present invention is clearly novel over this document. Audett also teaches directly away from the present invention as the presence of an intrinsic photo-initiator on the copolymer would prevent the use of such copolymers in films to be used with UV curable inks.

U.S. 5,700,623 (Anderson) relates to bar code labels of very high thermal stability which include a light sensitive silver halide emulsion layer and an anti-static coating. The specific films of the claimed invention are also but not disclosed in this document. These labels are not specifically designed for use with UV curable inks and indeed the presence of photo-sensitive silver halide suggests that they would not be suitable for use with radiation cured inks even if these labels were printable. The high temperature environment (vulcanisation of tires typically at 300 to 400° F) for which these labels were designed also teaches against their use with UV inks which will thermally degrade at such high temperatures. The various layers forming such labels do not comprise monomers and again the conditions of use would teach against adding an unsaturated monomer to these labels, as the monomer may react uncontrollably, decompose and/or burn at such high temperatures.

U.S. 4,592,953 (Farrar) relates to oriented polyester films, in particular biaxially oriented PET films which are coated with a halogen free copolymer primer from three co-monomers; vinyl acetate, a co-monomer with a N-methylol group, and co-monomer

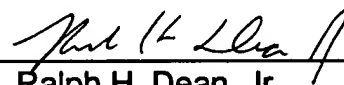
with one double bond. Such copolymer primers do not contain non-polymeric components such as the specific unsaturated compounds claimed in claim 1 of the present invention and there is no motivation in the document to add such components.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Such action is requested.

If the Examiner has any questions regarding this Amendment, the application in general or has any suggestions for placing the application in condition for allowance, the Examiner is respectfully requested to call the undersigned at the number listed below.

Respectfully submitted,

Alastair Hugh SERVANTE et al.

By:   
Ralph H. Dean, Jr.  
Registration No. 25,134  
Attorney for Applicants

RHD/jlw  
Washington, D.C.  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
May 3, 2000